amended to identify the previously described primer sequences using SEQ ID NOs. Accordingly, the Applicants do not believe that any new matter has been added.

REMARKS

Claims 1-26 are active. The Applicants thank Examiner Ibrahim for the helpful and courteous interview of November 12, 2002. It was suggested that minor revisions to the specification would address the outstanding objections, that a terminal disclaimer would address the double patenting rejection and that the anticipation rejection be addressed by pointing out that Sugita et al. do not disclose an adventitious shoot redifferentiation gene under the control of a light-inducible promoter. Additional information about the genus of adventitious shoot redifferentiation genes was requested. The Applicants have made the suggested changes and arguments and also now provide copies of scientific publications further describing the genus of adventitious shoot redifferentiation genes. Favorable consideration is respectfully requested.

Rejection—35 U.S.C. 102(b)

Claims 1-4, 6-9 and 1-25 were rejected under 35 U.S.C. 102(b) as being anticipated by Sugita et al., WO97/42334 (abstract and figures). (This patent corresponds to U.S. Patent No. 6,326,152 B1, which is a filing under 35 U.S.C. §371 of the international application—see the U.S. patent.) Sugita et al. do not anticipate the present invention because they do not disclose an adventitious shoot redifferentiation gene (the selectable marker) under the control of a light-inducible promoter as required by the present invention.

The Sugita abstract refers to placing the removable DNA element under the control of an inducible promoter (inducible promoters are described in col. 5, lines 25-39), but does not disclose or suggest placing an adventitious shoot redifferentiation gene (e.g., *ipt* or the other

adventitious shoot redifferentiation genes described on page 11 of the specification) under the control of a light-inducible promoter.

Similarly, the figures do not disclose placement of an adventitious shoot rediffentiation gene, such as *ipt*, under the control of a light-inducible promoter. A light-inducible promoter switches "on" when exposed to light. However, the 35S-promoter shown in the Sugita figures is a constitutive promoter. Thus, while the *ipt* gene, which is an adventitious shoot redifferentiation gene, is placed under the control of the 35S-promoter in Figs. 4 and 5, this gene is under the control of a constitutive promoter and not a light-inducible promoter as required by the present invention.

The rbcS-3B promoter described in the Sugita figures may be considered a light-inducible promoter, see e.g., Sugita, col. 6, lines 1-4, however, none of the constructs in the Sugita figures places an adventitious shoot redifferentiation gene, such as *ipt*, under the control of this promoter. For instance, the "R" gene shown as being downstream from the *rbcS* promoter in Figs. 1-5 is a recombines gene (see col. 8, lines 45-46) and not an adventitious shoot redifferentiation gene. Similarly, the term "T" in these figures refers to nopaline synthase polyadenylation signal (col. 9, lines 63-64), and thus does not represent an adventitious shoot redifferentiation gene.

Moreover, assuming *arguendo* that there were some suggestion in Sugita to place an adventitious shoot redifferentiation gene under the control of a light-inducible promoter, there is no suggestion or reasonable expectation of success for obtaining the superior effects of this combination, e.g., the present invention provides a more efficient way to screen and identify transgenic tissue. In the present invention, an adventitious shoot redifferentiation gene is placed under the control of a light-inducible promoter which is activated particularly strongly in green tissues, so that the adventitious shoot redifferentiation of transgenic cells is prominently improved in the green tissues which are suitable for adventitious shoot

redifferentiation. Thus, the selection efficiency of transgenic tissues is improved, see page 23, line 5 to page 25, line 2, in the specification.

Specifically, when a gene relating to production of a plant hormone is used as a selectable marker gene and gene introduction to a plant cell is carried out by using a vector in which the selectable marker gene is placed under the control of a promoter which can constantly function, such as the 35S promoter, as disclosed in US '192, the plant hormone produced by the gene expression in a transgenic cell migrates into its peripheral cells to provide influences indirectly, thus sometimes causing differentiation of adventitious shoots and adventitious roots from the nontransgenic cells which have received the influences, and thus there is a problem that working efficiency at the selection of the transgenic tissue afterward is lowered (see page 7, line 5 to page 8 line 6 in the specification of the present application).

The present inventors found that when an adventitious shoot redifferentiation gene under the control of a light-inducible promoter is introduced into a plant cell, the redifferentiation of adventitious shoots from nontransgenic cells can be reduced even if the adventitious shoot redifferentiation gene is a gene relating to production of a plant hormone, see e.g., page 9, line 3 up to page 10, line 16, in the specification.

Accordingly, the Applicants respectfully submit that Sugita et al. neither disclose nor suggest the invention, nor provide any suggestion or reasonable expectation of success for the benefits provided by the present invention, and respectfully request that this rejection now be withdrawn.

Adventitious shoot redifferentiation genes

The genus of adventitious shoot redifferentiation genes is described in the specification, for instance, on page 11. As discussed during the interview, additional information about these genes is provided below.

The *CKI1* gene was known as an adventitious shoot redifferentiation gene at the time the present application was filed--see the summary of T. Kakimoto, *Science*, 274, 982-985 (1996) as attached. This documents shows that typical cytokinin responses include rapid cell division and shoot formation in tissue culture in the absence of exogenous cytokinin, and that a gene, *CKI1*, induced typical cytokinin responses.

EP 1033409 discloses that a *CKI1*-introduced tissue culture is cultured in a cytokinin free medium to thereby differentiate adventitious shoots and therefore is useful as a selectable marker gene (see Examples 1 and 3).

Rejection--Double Patenting

Claims 1-26 were rejected under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-21 of U.S. Patent No. 6,294,714 in view of Chua et al., U.S. Patent 6,063,985. While not necessarily agreeing to the ground of rejection, as discussed, the Applicants herewith submit a terminal disclaimer over the patent issuing from the parent application, U.S. Patent No. 6,294,714 B1. Accordingly, this rejection may now be withdrawn.

Priority Claim under 35 U.S.C. 120 (Reference to Parent Application)

The first page of the specification was amended in the Utility Patent Application Transmittal (see section 18), filed May 8, 2001. However, the amendment above updates this information to refer to include a reference to the patent issuing from the parent application.

Sequence Listing

The Applicants herewith submit as part of the original disclosure a paper copy and computer readable form (CRF) of the Sequence Listing. The sequence listing information in the paper copy and on in the CRF is identical.

CONCLUSION

In view of the above amendments and remarks, the Applicants respectfully submit that this application is now in condition for allowance. Early notification to that effect is earnestly solicited.

Respectfully submitted,

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Docket No.: 206445US0CONT

Marked-Up Copy
Serial No: 09/850,091
Amendment Filed on: HEREWITH

IN THE SPECIFICATION

The first sentence of the specification was previously amended by the utility patent transmittal form, filed May 8, 2001. On page 1, line 1, of the specification, please replace this first sentence with the following:

--This application is a continuation of application Serial No. 09/354,305, filed on July 16, 1999, now U.S. Patent No. 6,294,714 B1.—

Please replace the paragraph starting on page 11, line 8, and ending on line 7 of page 12, with the following paragraph:

--It is generally known that a plant hormone cytokinin is taking an important role in the redifferentiation of adventitious shoots. Thus, any one of the cytokinin-related genes can be used as the adventitious shoot redifferentiation gene, including cytokinin synthesis genes such as *ipt* gene (A. C. Smigocki and L. D. Owens, *Proc. Natl. Acad. Sci. USA*, 85:5131 (1988)) derived from *Agrobacterium tumefaciens* (hereinafter referred to as "*A. tumeraciens*"), [β-glucoronidase gene derived from *Escherichia coli* which is a gene which activates inactive cytokinin (Morten Joersbo and Finn T. Okkels, *Plant Cell Reports*, 16: 219-221 (1996)),] and CKI1 gene derived from *Arabis thaliana* which is considered to be a cytokinin receptor gene (Kakimoto T., *Science*, 274: 982-985 (1996)). In addition to these cytokinin-related genes, *rol* genes derived from *Agrobacterium rhizogenesis* (hereinafter referred to as "*A. rhizogenesis*") induce redifferentiation of adventitious shoots in a hormone-free medium, so that they can also be used as the adventitious shoot redifferentiation gene.

Among these genes, the *ipt* gene is particularly preferred as the selectable marker gene to be used in the present invention because abnormal morphology induced thereafter can be detected easily.--

Please substitute the paragraph starting on line 10 of page 27 of the specification with the following revised paragraph:

--The *rbcS* promoter present in the chromosome of a tomato (*Lycopersicon lycopersicum* var. Ailsa Craig) was amplified by the PCR (primer 1 (rbcS3B1); 5'-GGATGTTAATGGATACTTCTT-3' (SEQ ID NO: 1), primer 2 (rbcS3B2); 5'-GACAATAATTGGTCTCTAGTA-3' (SEQ ID NO: 2), and the thus obtained fragments were blunt-ended using T4 polymerase (purchased from Takara Shuzo Co., Ltd.) and inserted in to the *Sma I* restriction enzyme site of a plasmid pHSG398 (purchased from Takara Shuzo Co., Ltd.) to obtain a recombinant plasmid pRB1.--